1/2   009   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--ABSORPTION SPECTRA OF CADMIUM HALIDE CRYSTALS -U-

AUTHOR-(04)-LYSKOVICH, A.B., ZHEREBETSKIY, S.K., CHORNIY, Z.P., PENTSAK,
   G.M.
COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 606-10

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CADMIUM COMPOUND, HALIDE, BROMIDE, CRYSTAL ABSORPTION
   SPECTRUM, CADMIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0469   STEP NO--UR/0185/70/015/004/0606/0610

CIRC ACCESSION NO--AP0135932
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0135932

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 90DEGREESK, THE ELECTRONIC
ABSORPTION SPECTRA OF CRYST. CDCL SUB2 AND CDBR SUB2 SHOWED PRESENCE OF
IMPURITIES. IN CDCL SUB2, BR IMPURITIES SHIFTED ABSORPTION MAX. TO
LONGER WAVELENGTH AND THE PRESENCE OF I CAUSED A LAMBDA SUBMAX AT 246
MMU. ALL INVESTIGATED CDBR SUB2 SAMPLES CONTAINED SOME I IMPURITIES
GIVING LAMBDA SUBMAX AT 274 MMU. THE PRESENCE OF PB PRIME2POSITIVE IN
CDCL SUB2 AND CDBR SUB2 CAUSES APPEARANCE OF LAMBDA SUBMAX AT 284 AND
315 MMU, RESP.   FACILITY: L'VOV. GOSUNIV. IM. FRANKO, LVOV,
USSR.

UNCLASSIFIED

1/2   016   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--CONSTRUCTION OF THE PRINCIPAL FUNDAMENTAL SOLUTION TO THE FORCE OF
  GRAVITY EQUATION -U-
AUTHOR--CHORNYY, A.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA B GEOLOGIIA,
  GEOFIZIKA, KHIMIIA I BIOLOGIIA, VOL. 32, MAR. 1970, P. 237-239
DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATHEMATICAL SCIENCES

TOPIC TAGS--EARTH GRAVITY, LAPLACE EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1653   STEP NO--UR/0442/70/032/000/0237/0239

CIRC ACCESSION NO--AT0118632
                          UNCLASSIFIED

CIRC ACCESSION NO--AT0118632
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROCEDURE FOR
DERIVING A FUNDAMENTAL SOLUTION TO THE EQUATION OF THE FORCE OF GRAVITY.
A SCHEME PROSPOSED BY LEVI IS APPLIED IN THE PROCESS. THE PROPERTIES
OF THE SOLUTION ARE DISCUSSED, SHOWING THAT THEY ARE ANALOGOUS TO THOSE
OF THE FUNDAMENTAL SOLUTION TO THE LAPLACE EQUATION.   FACILITY:
AKADEMIIA NAUK URAINSKOI SSR, INSTITUT GEOFIZIKI, KIEV, UKRAINIAN SSSR.

UNCLASSIFIED

USSR   UDC 612.822.6

KOGAN, A. V. and CHOROYAN, O. G. (Reviewers)

Samoregulyatsiya Golovnogo Mozga: Kiberneticheskiye Aspekty Teorii Narkoza
(Self-Regulation of the Brain: Cybernetic Aspects of Narcosis Theory), by
K. A. Ivanov-Muromskiy, Kiev, 1971, 248 pp

Leningrad, Fiziologicheskiy Zhurnal SSSR im. I. M. Sechenov, No 8, 1972, pp
1,330-1,331

Translation: The monograph under review examines the mechanisms of self-regula-
tion of brain systems. It also deals with a wide range of matters: nature and
development of the main nerve processes, interrelations of the excitatory and
inhibitory processes at the cellular and system levels, formation of central
inhibition in relation to methods of inducing it.

There is no doubt that elucidation of the mechanism of action of narcotic
agents has considerable theoretical and practical significance. However,
it is a difficult task largely because we do not know enough about the dy-
namics of the regulatory processes responsible for the transition from wake-
fulness to diffuse inhibition. The author's use of the systems approach to

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KOGAN, A. V. and CHOROYAN, O. G. (Reviewers), Fiziologicheskiy Zhurnal SSSR
im. I. M. Sechenov, No 8, 1972, pp 1,330-1,331

investigate self-regulation of the brain is very promising. This approach makes
it possible to analyze the interrelations of the hierarchical control systems
from the cybernetic standpoint.

The introduction poses the problem of self-regulation of the cerebral cortex
by the mechanisms of direct communication and feedback between the cortex and
subcortical formations. It emphasizes the important functional role of various
brain structures in response to narcotics. However, one can question the
author's view that electric narcosis is the basis for creating new methods of
controlling the processing of information in different divisions of the brain
(p 8). Narcosis evidently produces some modification in such information
processing to cope with the strategic problem of the brain, homeostatic self-
regulation, but it does not fundamentally alter the method of information
processing, as the introduction implies.

The section "Cybernetic Aspects of Nervous Activity" contains a review of the
literature on the theory of cybernetic automatic control systems. It examines
some ideas on the mechanisms of self-regulation in the nervous system and
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USSR

KOGAN, A. V. and CHOROYAN, O. G. (Reviewers), Fiziologicheskiy Zhurnal SSSR im. I. M. Sechenov, No 8, 1972, pp 1,330-1,331

assesses the methods used to evaluate brain function. In doing so, the author defines the process of self-regulation as a form of adaptation carried out with the help of direct communication and feedback aimed at maintaining homeostasis in the broad sense of the word.

In judging the contents of this section, one cannot help noting that it deals with a wide range of matters some of which go beyond the scope of the questions that are the object of the author's own research, which is discussed in the next chapter. For example, in the section that describes various models of brain activity, it would have been better, we believe, to have concentrated only on those which relate directly to sleep or narcosis.

The section "Methods of Investigation" describes the methods used by the author to alter brain function by means of pharmacologic agents (ether, nembutal, chlorpromazine) and electrical stimulation which induces electronarcosis. He employs for this purpose an original apparatus designed in his own laboratory. He also describes the considerations that guide the choice of optimum parameters of the electric current that brings about narcosis. He thoroughly analyzes the energy characteristics of stimuli in the light of his concept of

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USSR

KOGAN, A. V. and CHOROYAN, O. G. (Reviewers), Fiziologicheskiy Zhurnal SSSR
im. I. M. Sechenov, No 8, 1972, pp 1, 330-1,331

the maximum significance of the energy evaluation of a stimulus. Various types
of mathematical analysis in a computer and several original algorithms were
used to process the factual material.

The next section "Experimental Studies" describes and discusses the results of
the author's long-term research in this field. He shows that as the actions
used are intensified, more or less identical changes take place in the dynamics
of the EEG, which he rightly regards as proof that common patterns of change in
excitability and lability underly the brain's reactions. The existence of
balancing and paradoxical phases is an indication of the development of para-
biosis. The author obtained experimental data which show that inhibition of
the cortical structures during narcosis is not a diffuse phenomenon but a
complex process with a mosaic distribution of foci of excitation and inhibition.

Some of the author's views, however, are clearly debatable, specifically his
conclusion that narcotics affect primarily the cortical structures while the
reticular formation is highly resistant to them. There is sound evidence in
the literature that these agents act chiefly on structures with polysynaptic
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USSR

KOGAN, A. V. and CHOROYAN, O. G. (Reviewers), Fiziologicheskiy Zhurnal SSSR
im. I. M. Sechenov, No 8, 1972, pp 1,330-1,331

junctions (Magoun, 1952; Dell, 1952; Bradley and Key, 1968; Herz, 1964;
Hopkins, 1965; Gmyrya-Novi, 1965; others).

That narcotics have a pronounced effect on the structures of the nonspecific
reticular formation is also suggested by the author's own data, notably those
indicating that narcotics influence chiefly secondary responses while the pri-
mary responses remain intact. Fresh light could have been thrown on the
author's results if he had also used information parameters of the self-regu-
latory processes. For example, in quantitatively evaluating homeostatic self-
regulation of brain functions he could have successfully used the criteria of
organization, orderliness (according to Fisher and Foerster), and other in-
formation characteristics.

In general, the monograph under review is a contribution to our knowledge of
the physiological mechanisms governing the shift of the brain's operating
mechanisms from wakefulness to inhibition and to the development of means of
controlling these processes.
5/5

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USSR   UDC 612.275.1.017.2:612.172.015.32

SIMANOVSKIY, L. N. and CHOTOYEV, Zh. A., Institute of Evolutionary
Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR,
and Kirgiz Medical Institute

"Change in the Rate of Glycolysis and Glycogenolysis in Rat Myocardium in
Different Stages of Acclimatizaon to High Altitudes"

Abstract: In a study of carbohydrate metabolism in rats adapted to hypoxia
in the Tyan-Shan mountains (3,200 m above sea level), the rate of glycolysis
in the right and left ventricles of the heart was found to decrease on day 3
of acclimatizaon, return to normal on day 10, but increase significantly in
both ventricles on days 30 and 40. The rate of glycogenolysis increased in
the left ventricle starting on day 20 and in the right ventricle starting on
day 30. The adaptive changes in glycolytic metabolism of the myocardium man-
ifested by stimulation of glycolysis and glycogenolysis by day 20 and
especially by days 30 to 40 are consistent with the literature data that
adaptation to hypoxia generally takes 3 to 6 weeks.

1/1

USSR   UDC 612.273-053:612.822.1.015.32-053

SIMANOVSKIY, L. N., and CHOTOYEV, Zh. A., Laboratory for the Study of the
Resistance of the Organism, Institute of Evolutionary Physiology and Bio-
chemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad, and
Kirgiz Medical Institute, Frunze

"The Effect of Hypoxia on Glycogenolysis and Glycolysis Rates in the Rat
Brain"

Abstract: Glycogenolysis and glycolysis in the whole brain of young and
old rats were studied at sea level and under hypoxic conditions in a low-
pressure chamber or at an altitude of 3,200 m. The rate of carbohydrate
metabolism increased during postnatal development. In the absence of hy-
poxia, the rate of accumulation of lactate from either glycogen or glucose
increases with maturation of the animals. The brain of young rats consumes
primarily glycogen, particularly under anaerobic conditions. This may be
one of the reasons that young animals are more resistant to hypoxia than
mature animals. Adaptation of mature rats to intermittent hypoxia is
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SIMANOVSKIY, L. N., and CHOTOYEV, Zh. A., Zhurnal Evolyutsionnoy Biokhimii
i Fiziologii, Vol 6, No 5, Sep/Oct 70, pp 577-579

related to an increase in glycolysis, whereas adaptation of rats to high
altitudes results in an increase in glycogenolysis. The type of carbo-
hydrate metabolism is thus similar to the metabolism characteristic of the
early stages of ontogenesis.

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UNCLASSIFIED

TITLE--COPOLYMERIZATION OF BUTYL METHACRYLATE WITH 5,ALKYL,1,3,DIALLYL
ISOCYANURATES -U-

AUTHOR-(04)-CHOVNIK, L.I., KHOMENKOVA, K.K., PAZENKO, Z.N., KORNEV, K.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (1) 9-10

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COPOLYMERIZATION, ACRYLATE, HEAT RESISTANCE, TENSILE STRENGTH,
ELONGATION, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1509

STEP NO--UR/0436/70/000/001/0009/0010

CIRC ACCESSION NO--AP0112503

PROCESSING DATE--02OCT70

UNCLASSIFIED

CIRC ACCESSION NO--AP0112503   UNCLASSIFIED   PROCESSING DATE--02OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPOLYMN. OF H SUB2 C:CMECO
SUB2 BU (I) WITH 5,ALKYL,1,3,DIALLYL ISOCYANURATES (II) (U.S.S.R.
165,460) GAVE HEAT RESISTANT COPOLYMERS.   THE BEST I-II RATIO WAS 95:5.
THE BULK COPOLYMN. WITH 0.3PERCENT BZ SUB2 O SUB2 AT 60-80DEGREES GAVE
COPOLYMERS WITH THE FOLLOWING PROPERTIES (ALKYL, PERCENT WT. LOSS AT
210DEGREES IN 150 MIN, TENSILE STRENGTH AT BREAK IN KG-MM PRIME2,
PERCENT ELONGATION AT BREAK GIVEN); ME, 2.11, 0.300, 455; ET, 3.29,
0.658, 362.5; BU, 3.35, -; -; AMYL, 3.41, 0.4005, 4416.5; OCTYL, 5.73,
0.5280, 448; BROMOETHYL, 2.73, 0.6501, 198.   THE EXPTL. VALUES FOR
POLY(BU METHCRYLATE) WERE 55.97, 0.4897, AND 510 (IN THE ABOVE ORDER).

UNCLASSIFIED

1/2   017
UNCLASSIFIED
TITLE--SHAPE OF POLAROGRAMS OF NICKEL ION DISCHARGE ON A PLATINUM
MICROELECTRODE IN A SODIUM SULFATE POTASSIUM CHLORIDE MOLTEN EUTECTIC
PROCESSING DATE--30OCT70

AUTHOR-(02)-CHOVNYK, N.G., FOMICHEV, A.M.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH 1970, 36(1), 60-1

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--NICKEL, SODIUM SULFATE, PLATINUM ELECTRODE, POLAROGRAPHY, ION,
EUTECTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1996

STEP NO--UR/0073/70/036/001/0060/0061

CIRC ACCESSION NO--AP0118955
UNCLASSIFIED

CIRC ACCESSION NO--AP0118955   UNCLASSIFIED   PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLAROGRAMS FOR THE DISCHARGE OF
  NI AT 555DEGREES AT A PT MICROELECTRODE IN A NA SUB2 SO SUBR -KCL
  EUTETIC ARE DESCRIBED BY THE ILKOVIC RELATION AND NOT THAT OF KOLTHOFF
  AND LINGANE.   FACILITY: KUIBYSHEV. AVIATS. INST., KUIB'YSHEV,
  USSR.

UNCLASSIFIED

ON THE KINETICS OF THE STREAMING POTENTIAL ESTABLISHMENT

Zolotarev, P. P.; Chrayev, N. V.

Summary

The kinetics of the establishment of the steady streaming potential have been studied. A model consisting of two vessels of the same volume connected by a system of parallel slit pores or liquid films has been used in calculations. The results of calculations agree satisfactorily with the known experimental data.

D. A.

REEL/FRAME
19721377

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USSR

UDC 681.325.53

DEWALD, Ingo; CHRISTIANSMEIER, Gebrhard, and BACHMANN, Ludwig, (VEB Elektronische Rechenmaschinen, East Germany)

"A Device for Converting Decimal Numbers to Binary and Vice Versa"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Patent No 311474, Division G, filed 18 Feb 69, published 9 Aug 71, pp 238-239

Translation: This Patent introduces a device for converting decimal numbers to binary and vice versa. The device contains a shift register for recording the binary number, and also decimal registers, each connected with two code converters. As a distinguishing feature of the patent, in order to increase speed, the outputs of the last k digits of the shift register are connected to the inputs of both code converters of the decimal register for the first digital place, and the outputs of these code converters are connected to the inputs of the decimal register for this same digital place. The k outputs of the code converters of the decimal register for each preceding digital place are connected to

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USSR

DEWALD, I., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy,
tovarnyye znaki, No 24, Aug 71, Patent No 311474, Division G, filed
18 Feb 69, published 9 Aug 71, pp 238-239

the k inputs of the code converters of the decimal register for the next
digital place. The k outputs of the code converters of the decimal
register for the last digital place are connected to the inputs of the
first k digital places of the shift register. Conventional priority
from 6 Jun 68.

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1/2   026   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--THE EFFECT OF COMPRESSION OF THE OCULAR HEMODYNAMICS -U-

AUTHOR-(02)-CHRUBANOVA, E.K., KISELEV, G.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 2, PP 58-64

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE, HEMODYNAMICS, PRESSURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0692   STEP NO--UR/0357/70/000/002/0058/0064

CIRC ACCESSION NO--AP0102676
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0102676

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMOUNT OF BLOOD FILLING THE
EYE WAS MEASURED ON ITS COMPRESSION WITH VARIOUS PLUGING WEIGHTS, BY
MEANS OF BAYAR'S OPHTHALMODYNAMOMETRY AND BY EXERTING PRESSURE ON MAJOR
CERVICAL VESSELS. THE PLUNGER'S WEIGHT FAILED TO AFFECT THE MAGNITUDE
OF THE OCULAR PULSE. COMPRESSION OF THE EYEBALL WITH A FORCE OF 35 G
AUGMENTED THE PULSE PRESSURE AMPLITUDE AND BROUGHT DOWN THE VOLUMINAL
PULSE IN HEALTHY PERSONS AND IN GLAUCOMATOUS PATIENTS. COMPRESSION WITH
FORCE OF 50 G REDUCED THE CALIBER OF RETINAL VESSELS, THIS CALIBER
INCREASING BY COMPARISON WITH THE INITIAL ONE ON DISCONTINUANCE OF
COMPRESSION. DURING COMPRESSION OF CERVICAL VEINS THE AMPLITUDE OF THE
EYE PULSE INCREASED, WHILE COMPRESSION OF THE COMMON CAROTID ARTERY
BROUGHT THE INTRAOCULAR TENSION DOWN WITH SUBSEQUENT EXTINCTION OF THE
EYE PULSE. THE DATA GATHERED BY THE AUTHORS EVIDENCE THAT COMPRESSION
OF THE EYEBALL AND OF MAJOR CERVICAL VESSELS EXERCISES A DEFINITE
INFLUENCE ON THE OCULAR HEMODYNAMICS.

UNCLASSIFIED

USSR

UDC 621.35.035

CHUB, A. T.

"Calculating the Background Current of a Chemotron Converter"

Priborostroyeniye. Resp. mezhved. nauch.-tekhn. sb. (Instrument Making. Republic Interdepartmental Scientific and Technical Collection), No 12, 1972, pp 14-19 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L229)

Translation: The formula was derived for calculating the background current of a chemotron converter under the assumption that the diffusion rate of the reducing component of the electrolyte is finite. Some conclusions were obtained from the background current formula.

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USSR

UDC 621.35.035

CHUB, A. T., MARAKTANOV, V. A.

"Problem of the Effect of the Shape of the Cathode Channel on the Chemotron Converter Characteristic"

Priborostroyeniye. Resp. mezhved. nauch.-tekhn. sb. (Instrument Making. Republic Interdepartmental Scientific and Technical Collection), No 12, 1972, pp 10-14 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L228)

Translation: A study was made of the procedure for calculating the convective diffusion and basic characteristics of chemotron converters with noncoaxial cathode cylinders. The theoretical analysis consists in solving the general equations of convective diffusion in the bicylindrical coordinate system. The effect of the noncoaxial nature of the cathode cylinders on the current density distribution and the conversion characteristics of the instruments was clarified.

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USSR   UDC 669.295.472

VOLYNSKIY, V. V. ANTIPIN, L. N., MANSKIY, Ye. G., and CHUB, B. Y.

"Interaction of Oxygen with Carbon-Graphite Anode During Electrolysis of Fluorotitanate Melts"

Sb. tr. Vses. n.-i. i proyektn. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 89-93, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G194 by the authors).

Translation: Problems of the interaction of discharged ｖ ｖith the carbon-graphite anode during electrolysis of oxyfluorotitanate melts are studied. The influence of oxides on the electrochemical characteristics of the anode are studied. Thermodynamic calculation shows the possibility of formation of C_xO type oxides. These compounds are the primary cause of slow decreases in the reverse electromotive force when the polarizing current is turned off. 2 figures; 5 biblio; refs.

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1/2   016   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--USE OF BORON, ZINC, MANGANESE, AND MOLYBDENUM FERTILIZERS UNDER
IRRIGATED SUGAR BEETS ON DARK CHESTNUT SOILS OF SARATOV ZAVOLZHE -U-
AUTHOR-(02)-CHUB, M.P., MURSANOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (2), 111-17

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VEGETABLE CROP, SUCROSE, MINERAL FERTILIZER, BORON, ZINC,
MANGANESE, MOLYBDENUM, AGRICULTURE CROP YIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0510   STEP NO--UR/0485/70/000/002/0111/0117

CIRC ACCESSION NO--AP0134278
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0134278
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LARGEST BEET AND SUGAR YIELDS
WERE OBTAINED AFTER ZN AND B FERTILIZING. THE APPLICATION OF B, MN, AND
ZN DECREASES THE CONTENT OF NONALBUMIN-N IN THE BEETS.   FACILITY:
NAUCH.-ISSLED. INST. SEL. KHOZ. YUGO-VOSTOKA, SARATOV, USSR.

UNCLASSIFIED

USSR

UDC 547.785.5'786.07

TSUPAK, Ye. B., CHUB, N. K., SIMONOV, A. M., and MIROSHNICHENKO, N. M.,
Rostov State University, Rostov-on-Don

"Studies in the Field of Benzimidazole Derivatives. XXVIII. Synthesis of Some
3-/2'-Benzimidazolyl/isoxazoles"

Abstract: By the chlorination of the oximes of 1-methyl-2-formylbenzimidazole
and of its 5-methyl and 5-nitro derivatives, the hydrochlorides of the corres-
ponding 2-benzimidazolylmethylhydroxamoyl chlorides were synthesized. Nitration
of the oximes gave benzimidazolylmethylnitrolic acids. The products of the two
conversions reacted with acetyl- or benzoylacetone in the presence of bases,
forming 1', 5'-substituted 3-/2-benzimidazolyl/-4-acyl-5-methylisoxazoles.

1/1

USSR

UDC 547.785.5+541.49+288.4

KOGAN, V. A., OSIPOV, O. A., CHUB, N. K., GARNOVSKIY, A. D., BURLOV, A. S.,
TSUPAK, Ye. B., and POLUNIN, A. A., Rostov-na-Donu State University

"Complex Compounds of Copper With Heterocyclic Aldoximes"

Abstract: A series of new polynuclear compounds of copper with heterocyclic
aldoximes synthesized from benzimidazole were produced for the first time.
Ultimate analysis and magnetochemical measurements are used to determine the
composition of the compounds and the presence of an exchange interaction with
perchlorate anions. Differences in the composition and properties of the
complexes are determined as they are related to the nature of the anion. The
IR spectra of the compounds are studied and a hypothesis is proposed for the
point of coordination of the ligand with copper.

1/1

- 23 -

TITLE--REACTION OF 2,AMINOMETHYLBENZIMIDAZOLE WITH NITROUS ACIO -U-

AUTHOR--CHUB, N.K., TSUPAK, YE.B., SIMONOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (1), 127

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, CHLORINATED ORGANIC COMPOUND, BROMINATED
   ORGANIC COMPOUND, BENZENE DERIVATIVE, ORGANIC AZOLE COMPOUND, AMINE
   DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1782   STEP NO--UR/0409/70/000/001/0127/0127

CIRC ACCESSION NO--AP0100362
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0100362
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF I (R PRIME1 EQUALS CH
SUB2 NH SUB2, R PRIME2 EQUALS H) WITH 1 MOLE HNO SUB2 IN HCL OR HBR
SOLN. (3 MOLES) GAVE I (R PRIME1 EQUALS CH SUB2 CL OR CH SUB2 BR, R
PRIME2 EQUALS H) IN 81 AND 90PERCENT YIELDS, RESP. WITH EXCESS HNO SUB2
(2 MOLES) THERE WERE FORMED I (R PRIME1, R PRIME2, PERCENT YIELD, M.P.,
AND CRYSTN. SOLVENT GIVEN): CH SUB2 CL, NO, 17, 178DEGREES, MEOH; CH
SUB2 OH, H, 35, 171-2DEGREES; H SUB2 O; HON:CNO SUB2, H, 39, 108DEGREES
(DECOMPN.), BAR.

USSR

UDC 621.771.8

BYKOV, A. A., GOLOVANENKO, S. A., MEANDROV, L. V., and CHUB, V. M.
"The Selection of An Optimal Temperature Mode for Rolling of the Bimetals
St3+0Kh17T and St3+Kh25T"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 177-181

Translation: In order to select the optimal temperature interval for rolling
and optimal compression mode under industrial conditions, diagrams of second-
order recrystallization of 0Kh17T and Kh25T steels are constructed. This was
performed using the method of rolling of wedge-shaped specimens. The tempera-
ture of the beginning of rolling of the chrome steels should not exceed 1,000°C.
When bimetals St3+0Kh17T and St3+Kh25T were rolled under industrial conditions,
the temperature of beginning of rolling was increased to 1100°C. By using
slight compression and properly selecting the rolling rate, recrystallization
in the high-temperature area was suppressed, a low temperature of end of rolling
was achieved, and good fine grain was achieved in the clad layer of the finished
sheet. 1 figure; 6 biblio. refs.

1/1

USSR

UDC 621.771.8:539.219.

ZEMSKIY, S. V., GOLOVANENKO, S. A., and CHUB, V. M.

"Diffusion Processes in Bimetals"

Spetsial'nyye Stali i Plavy (Special Steels and Alloys - Collection of Works), No 77, Metallurgiya Press, 1970, pp 150-159

Translation: The significance of diffusion in processes of formation of the transition zone in bimetals is studied. Diffusion of carbon in bimetals consisting of carbon steel plus types Kh18T, Kh25T, and Kh18N10T steels is studied. A method is suggested for determining the diffusion parameters of carbon on the basis of curves of photometry of autoradiograms. The diffusion coefficients and activation energy of carbon in types Kh17T, Kh25T, Kh18N10T, and 3 steels, and of nickel in Kh17T and Kh25T steels are determined. The influence of intermediate nickel interlays and stresses on redistribution of carbon in these bimetals is studied. 6 figures; 1 table; 11 biblio. refs.

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USSR

UDC 621.762.4:669.71

IVASHCHENKO, V. V., and CHUB, V. S., Kiev Polytechnical Institute

"Free Vibration Compacting of SAP Powders".

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 28-40

Abstract: Free vibration compacting of SAP-1 powder was studied in order to
establish the possibility of even adjustment of the powder to a density near
that of degassed ("presintered") SAP briquettes. The change in density of
the powder mass during vibration compacting was generally similar to that
observed for other loose bulk materials under the same conditions. It was
found that there are optimal vibration frequencies (on the order of 100 Hz)
producing the greatest density. Amplitude also has a definite optimal value
producing maximum compacting. The optimal value determined in these experi-
ments (40 microns) was the same for vibration frequencies from 50 to 200 Hz.
Vibration compacting succeeded in producing powder densities of up to 1.8 g/cm^3,
approaching that of preliminarily pressed briquettes.

1/1

USSR   UDC 621.726.2

VOLYNSKIY, V. V., ANTIPIN, L. N., MANSKIY, Ye. G., DROZDENKO, V. A., and
CHUB, V. Ya.

"An Investigation of the Cathode Process In Obtaining Titanium Powders of
Increased Purity"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya
Publishing House, Vol 6, 1970, pp 81-85

Translation: The effect of the concentration of lower titanium compounds,
cathode density of the current, and the material of the sub-layer on the
course of the cathode process when obtaining titanium powders with a high
degree of purity by the electrolyte method is studied. The mechanism of
the electrode reaction with different content of trivalent titanium in the
electrolyte is considered. The greatest effect on the purity of the
titanium powder obtained is exerted by the concentration of $TiCl_2$ in the
electrolyte. Technological conditions of electrolysis are selected which
make it possible to obtain powder of the assigned granulometric composition
with a 99.9% content of the primary metal. Four illustrations, one table,
and ten bibliographic entries.

1/1

USSR   UDC 669.71.472

ANTIPIN, L. N., VOLYNSKIY, V. V., MANSKIY, Ye. G., CHUB, V. Ya., and
KLIMENYUK, V. A.

"The Anode Effect During Electrolysis of Oxyfljorotitanium Fusions"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya
Publishing House, Vol VI, 1970, pp 77-81

Translation: The reasons for the appearance of the anode effect during elec-
trolysis of oxyfluorotitanium fusions on a carbon-graphite anode are investi-
gated. It is demonstrated that the anode effect arises as a result of the
formation of non-conducting oxides of the COF_2 type on the surface. The
formation of such compounds is accompanied by a worsening in wettability
and leads to passivation of the anode. Study of the critical density of
current in the oxyfluorotitanium fusion was done on an automatic device
for recording volt-ampere dependencies. It was demonstrated that the con-
centration of TiO_2 in the electrolyte exerts the primary influence on the
size of critical current density. Experimental results are given which show
the influence of TiO_2 concentration on the value of critical current density.
Four illustrations and 14 bibliographic entries.
1/1

USSR   UDC 669.295.472

VOLYNSKIY, V. V., ANTIPIN, L. N., MANSKIY, Ye. G., and CHUB, V. Ya.

"The Interaction of Oxygen With the Carbon-Graphite Anode During Electrolysis
of Fluorititanium Liquid Metals"

Translation: Questions of the interaction of discharge oxygen with the
carbongraphite anode during electrolysis of oxyfluorititanium liquid
metals are considered. The effect of oxides on the electrochemical features
of the anode is studied. A thermodynamic calculation is made which demon-
strates the possibility of forming oxides of the C_xO type. Such compounds
are the basic reason for the slow drop in inverse electromotive force when
a polarizing current is switched off. Two illustrations and five biblio-
graphic entries.

1/1

USSR

UDC 669.295.476

VOLYNSKIY, V. V., ANTIPIN, L. N., MANSKIY, Ye. G., DROZDENKO, V. A., and CHUB, V. Ya.

"Study of Cathode Process During Production of High-Purity Titanium Powders"

Sb. tr. Vses. n.-i. i proyektn. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 81-85, (Translated from Referativnyy Zhurnal—Metallurgiya, No. 1, 1971, Abstract No.1 G190 by the authors).

Translation: The influence of the concentration of lower compounds of Ti, D_k, and substrate material on the course of the cathode process is studied during production of high-purity Ti powders by the electrolytic method. The mechanism of the electrode reaction is studied with various contents of Ti^{3+} in the electrolyte. The greatest influence on the purity of the Ti powder produced is that of the concentration of $TiCl_2$ in the electrolyte. A technological mode of electrolysis is selected which allows production of powder with fixed granulometric composition with Ti content 99.9%. 4 figures; 1 table; 10 biblio. refs.

1/1

USSR   UDC 669.295.472   *1*

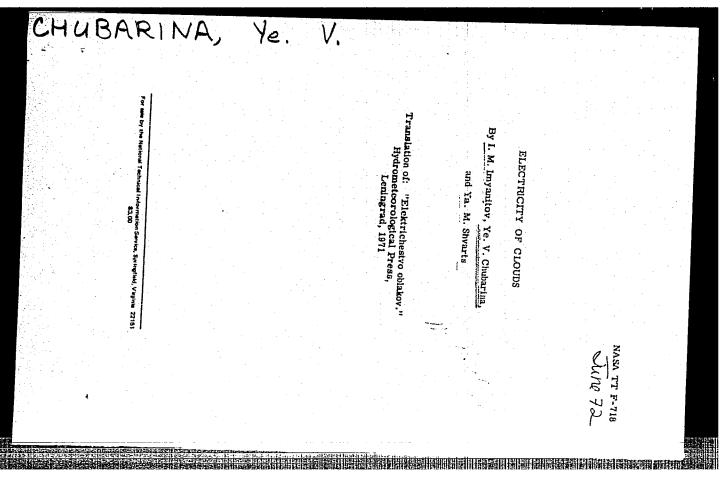ANTIPIN, L. N., BOLYNSKIY, V. V., MANSKIY, Ye. G., CHUB, V. Ya., and
KLIMENYUK, V. A.

"Anode Effect During Electrolysis of Oxyfluorotitanate Melts"

Sb. tr. Vses. n.-i. i proyektn. in-t titana ' [Collected works of All-Union
Scientific-Research and Planning Institute for Titanium], 6, 1970, 77-81,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
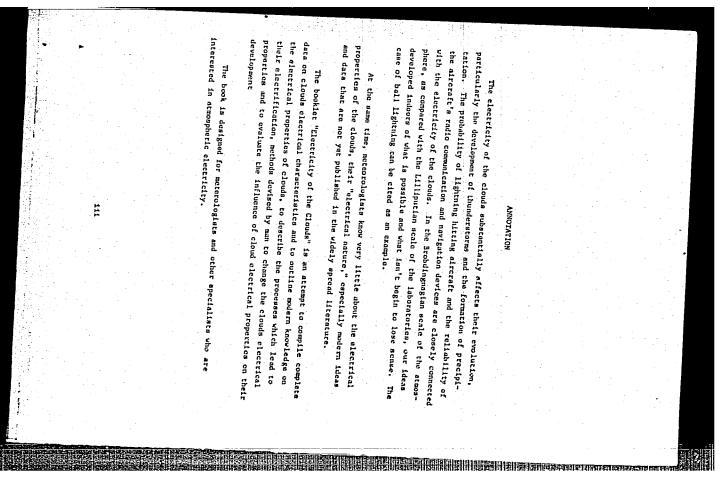No 1 G193 by the authors).

Translation: The causes for the formation of the anode effect during
electrolysis of oxyfluorotitanate melts on a carbon-graphite anode are
studied. The anode effect arises as a result of formation of non-conducting
oxides such as COF_2 on the surface. The formation of these compounds is
accompanied by worsening of wetability and leads to passivation of the
anode. Study of the critical D in oxyfluorotitanate melts was performed
on an automatic installation recording the volt-ampere functions. Primary
influence on the value of critical D is that of the concentration of
TiO_2 in the electrolyte. Experimental results are presented demonstrating
the influence of TiO_2 concentration on critical D. 4 figures; 14 biblio.
refs.

1/1

CHUBARINA, Ye. V.

ELECTRICITY OF CLOUDS

By I. M. Imyanitov, Ye. V. Chubarina,

and Ya. M. Shvarts

Translation of: "Elektrichestvo oblakov."
Hydrometeorological Press,
Leningrad, 1971

NASA TT F-718

June 72

ANNOTATION

The electricity of the clouds substantially affects their evolution, particularly the development of thunderstorms and the formation of precipitation. The probability of lightning hitting aircraft and the reliability of the aircraft's radio communication and navigation devices are closely connected with the electricity of the clouds. In the Brobdingnagian scale of the atmosphere, as compared with the Lilliputian scale of the laboratories, our ideas developed indoors of what is possible and what isn't begin to lose sense. The case of ball lightning can be cited as an example.

At the same time, meteorologists know very little about the electrical properties of the clouds, their "electrical nature," especially modern ideas and data that are not yet published in the widely spread literature.

The booklet "Electricity of the Clouds" is an attempt to compile complete data on clouds electrical characteristics and to outline modern knowledge on the electrical properties of clouds, to describe the processes which lead to their electrification, methods devised by man to change the clouds electrical properties and to evaluate the influence of cloud electrical properties on their development

The book is designed for meteorologists and other specialists who are interested in atmospheric electricity.

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USSR

UDC 612.822.3.0.87+612.766.1

CHUBAROV, A. V., and PETELINA, V. V., Special Design Bureau of Biomedical
Cybernetics and Laboratory of Comparative Physiology and Pathology, Institute
of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Evaluation of Operator Work Capability From Electroencephalograms"

Abstract: In connection with the fact that the electrical activity of the
brain is a generalized indicator of the state of the central nervous system,
an attempt was made to study the possibility of qualitative determination of
a person's work capability from electroencephalographic data. A special ex-
perimental method was developed by the authors in their study of seven healthy
persons. The work of these operators consisted of restoring a light beam
deviating from its vertical position to the marked center of an oscillographic
screen. This was to be accomplished by means of a special device equipped
with an indicator. The quality by which the task had been achieved was eval-
uated by the integral of the time discrepancy determining the operator error
(in mm/sec) in terms of the discrepancy amplitude (mm) and the time ($F = \int A\, dt$).

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USSR

In spite of the marked individual differences in motor reactions and a dif-
ferent level of tonic activity of the central nervous system in the test
subjects, there was a pronounced constant relationship between the quality of
task achievement and the background of electrical activity against which it
is produced. The level of electrical activity was clearly indicated by a
parameter P which related the average electroencephalogram amplitude and fre-
quency. The F and P parameters were evaluated on a complex of analog com-
puters. It was established that the value of F increases with increasing P.
The conclusion was drawn that the most accurate and quickest task achievement
was accompanied by the highest level of excitation of the cerebral cortex in
combination with the effects of diencephalic parts of the reticular complex.
In this way, the changes in the P parameter reflected short-term changes in
the functional state of the higher portions of the cerebrum caused by phase
effects of the diencephalo-reticular complex.

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USSR

UDC: 621.372.412

LOBANOV, Ye. M., CHUBAROV, L. B., YAKOVLEV, V. N., NEDOSTUPOV, V. N., BAGAYEV, N. M.

"Oscillation Frequency Temperature Dependence of Crystal Plates"

[Tr.] Tashkent. in-ta inzh. zh.-d. transp. ([Works] of the Tashkent Institute of Railway Transportation Engineers), 1970, vyp. 66, pp 146-148 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D345)

Translation: An investigation is made into the effect which temperature has on the frequency of oscillations of a quartz AT-section plate. An expression is derived which can be used to evaluate the effect of the temperature coefficients of the constants of elasticity of quartz as well as the effect of the angle of plate cut-off on the temperature coefficient of frequency. V. V.

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USSR

CHUBAROV, M. A.

"A Polynomial Assembler"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 42-44 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V650, by the author).

Translation: A polynomial assembler is studied, designed for performance of analytic operations on polynomials, sectors of power series, rational fraction functions and matrices.

1/1

USSR

KONDRIKOV, B. N., CHUBAROV, V. D., Moscow

"Development of Explosion Upon Impact"

Abstract: The behavior of a number of solid explosives was studied under
both impact loading and slow compression. The results of the experimental
work performed indicated that the explosion of an explosive tablet upon
impact is closely related to its rupture: explosions occured in the same
area of values of ΔA as did rupture, were quite similar in the nature of
the accompanying phenomena, requiring only somewhat greater expenditure
of energy. It is logical to assume that explosion occurs during rupture
of solid tablets when the intensity of rupture, i. e. rate of movement of
the material, and energy absorbed in the process are sufficiently great.
Calculations establish the existence of a critical value of energy absorbed
from the impact, above which explosion occurs with very high probability.

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USSR

UDC 669.71

LEVINSKIY, YU. V., CHUBAROV, V. M., ROMANOVICH, I. V., and DVOYCHENKOVA, L. V.

"Interaction of Tungsten and Molybdenum Wires With Nickel in the Composite Material"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 113-119

Abstract: Composite samples were prepared by hot pressing of nickel powder (carbonyl nickel) with either tungsten or molybdenum wire at 1000°C for 1-2 min. Samples prepared in this way were subjected to annealing in vacuum ($\sim 1 \cdot 10^{-4}$ mm Hg) at 1100-1250°C up to 100 hours. No interaction was detected between W or Mo wires with Ni powder immediately after pressing. However, a wide interaction zone produced by diffusion processes was present in all samples after annealing. In the case of tungsten the diffusion zone contained a solid solution of W in Ni, and in the case of Mo, a solid solution of Mo and Ni and an intermetallide layer. However, if wires were not carefully cleaned from the graphite lubricant, the contact zone contained up to three layers of complex carbides. The x-ray spectral analysis of the concentration of W and Mo in carbide layers and their microhardness indicated that their number and composition depends on heat treatment and on the extent of graphite impurity on the wires. The maximum concentration of W and Mo in the solid

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USSR

LEVINSKIY, YU. V., et al., Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 113-119

solution layer within the contact zone was ~ 38 and $\sim 36\%$, respectively, regardless of the presence or absence of carbide layers. The diffusion coefficient of W in Ni at 1100 and 1200°C was $(6.0\pm1.0)\cdot10^{-12}$ and $(3.1\pm0.5)\cdot10^{-11}$, respectively. For Mo it was $(3.1\pm0.95)\cdot10^{-11}$, $(5.7\pm1.0)\cdot10^{-11}$, and $(9.4\pm1.5)\cdot10^{-11}$ at 1100, 1200, and 1250°C, respectively. Diffusion of Ni in W and Mo was negligible because of very low solubility of Ni in these metals.

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Superalloys

USSR

UDC 546.78:620.172.2

CHUBAROV, V. N., LEVINSKIY, YU. V., SALIBEKOV, S. YE., TREFILOV, A. F., GRACHEV, L. V., RODIN, YE. M., LEVINSKAYA, M. KH., DVOYCHENKOVA, L. V., Moscow

"Heat-Resistant Composition Material Based on Nickel"

Abstract: Results are presented from development of the VKM-1 composition material constructed on the basis of the heat-resistant ZhS6-K nickel alloy reinforced with tungsten wire. Data are presented from metallographic and micro-radiographic studies of the compatability of the matrix with the fiber indicating insignificant interaction of the ZhS6-K alloy with the tungsten even after holding for 100 hours at a temperature of 1,200° C.

1/1

UNCLASSIFIED

TITLE--EFFECTIVENESS OF THE USE OF HERBICIDES ON SOSNOVKA COWPARSNIP PLANTINGS IN THE FIRST YEARS OF LIFE -U-

PROCESSING DATE--27NOV70

AUTHOR-(02)-CHUBAROVA, G.V., RYBNIKOVA, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 210-11

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, AGRICULTURE CROP, WEED KILLER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0182

STEP NO--UR/0394/70/008/003/0210/0211

CIRC ACCESSION NO--AP0130941

UNCLASSIFIED

CIRC ACCESSION NO--AP0130941   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. FIELD EXPTS. ON POSTEMERGENCE WEED
CONTROL BY SIMAZINE (I), PROMETRYNE (II), AND 2,4-D BUTYL ESTER (III) IN
SOSNOVKA COWPARSNIP (HERACLEUM SPECIES) FOR ENSILAGE, SOWN IN AUTUMN,
WERE CARRIED OUT. ONE EXPT. INCLUDED THE RATES 2 KG I, 2 AND 4 KG II,
AND 1.0 KG III-HA, AND THE OTHER 2 AND 4 KG I, 2 AND 4 KG II, AND 0.5
AND 1.0 KG III-HA. THE MAIN WEEDS WERE: CHENOPODIUM ALBUM, GALEOPSIS
SPECIOSA, CHRYSANTHEMUM INODORUM, POLYGONUM CONVOLVULUS, RAPHANUS
RAPHANISTRUM, THLASPI ARVENSE, FUMARIA OFFICINALIS AND SPERGULA SPECIES.
GOOD CONTROL AND THE HIGHEST CROP YIELDS WERE OBTAINED WITH I AND II.
THE BEST RESIDUAL EFFECTS WERE FOUND WITH I AT 2 KG-HA AND II AT 4
KG-HA. WEEDS AT THESE RATES AVERAGED ONLY 3.1 AND 6.1PERCENT, RESP.,
AND NO RESIDUES WERE FOUND.

UNCLASSIFIED

Electrochemistry

KORSHAK, V. V., KHRENKOVA, T. M., SILING, S. A., CHUBAROVA, M. A.,
VINOGRADOVA, S. V., and KASATOCHKIN, V. I.

"Structure and Properties of Polymeric Semiconductors Based on Pyrromellitic
Acid Tetranitrile and p-Phenylenediamine"

Abstract: The heating of a polymer based on pyrromellitic acid tetranitrile
and p-phenylenediamine (polyhexazocyclane PF) from 20 to 300, 400, 500, 600,
700, 800, and 900° at 5×10^{-3} torr, yielded polymers with specific resistance
ρ_{spec} from 10^{13} to 5×10^{-1} ohm cm and activation energy of conductivity $\triangle E$
from 1.7 to 0.1 ev, depending on the heat treatment. The structure of the
polymers was determined by X-ray diffraction analyses, nmr studies, and IR
spectroscopy. At heat-treatment temperatures above 500°C the polymer under-
goes degradation and cross-linking accompanied by the formation of bundles of
aromatic layers consisting mainly of condensed aromatic compounds.

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USSR

UDC: 62-531.6

TERESHCHENKO, P. G., CHIBRENKO Ye. I., Ukrainian Scientific Research
Institute of Natural Gases

"A Pneumatic Tracking Device"

USSR Author's Certificate No 318035, filed 13 Feb 70, published 12 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,
Jul 72, Abstract No 7A179)

Translation: Pneumatic trackers are known which contain a comparison
element connected to a repeater. The rate of change in the output signal
of such devices is approximately equal to the rate of change in the input
signal. However, in many instances it is required that the output signal
vary at a predetermined constant rate. As a distinguishing feature of the
proposed device, the functional possibilities are increased by adding
constant flowrate shapers whose outputs are connected to the nozzles of
the comparison element.

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USSR

CHUBERKIS, V. P.

"Testing of the Hypothesis of Normality of a One-Dimensional Distribution Rule"

Mat. Metody Resheniya Ekon. Zadach. [Mathematical Methods for Solution of Economics Problems -- Collection of Works], No 3, Moscow, Nauka Press, 1972, pp 146-152 (Translated from Referativnyy Zhurnal Kihernetika, No 4, 1973, Abstract No 4V196, by V. Pagurova).

Translation: In order to check the hypothesis of normality, the author suggests the statistics $n \int_{-\infty}^{\infty} \frac{[f^*(\varepsilon) - f(\varepsilon)]^2}{f(\varepsilon)} d\varepsilon$, where $f(\varepsilon)$ is the density of the standard normal distribution, and $f^*(\varepsilon)$ consists of the first terms of the Edgeworth expansion, while the mean, dispersion, coefficients of asymmetry and excess are replaced by their estimates constructed from the sample. The asymptotic properties of the statistics suggested are studied, and it is demonstrated that with sample volumes of $n \geq 500$ the statistics can be approximated by the χ^2 value with two degrees of freedom.

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USSR

UDC 621.316.722.1

KILADZE, N.SH., CHUBINASHVILI, D.N., CHUTKERASHVILI, T.D.

"Precision Regulators Of The Effective Value Of Large-Power A-C Voltage"

Tr. in-ta elektron. avtomatiki i telemekh. AN Gruz SSR (Works Of The Institute Of Electronic Automatics And Telemechanics, Academy Of Sciences, Georgian SSR), 1970, 8, No 2, pp 66-71 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B458)

Translation: In order to regulate a-c voltage with a power above 0.5 kw with great precision and small nonlinear distortion, it is advisable to use regulators with a saturation choke connected to the primary winding of an autotransformer. An electron-tube diode is used in the sensor [datchik] of effective voltage. In the circuit at 3 kw a control circuit using transistors is employed and in the circuit at 0.5 kw, a control circuit using tubes. The basic parameters of the regulators with an output voltage of 220 v plus or minus five percent at 3 and 0.5 kwt, respectively, are: load current 13.6 and 2.3 amp; specific power 45 and 25 wt/kg; coefficient of nonlinearity distortion 5 and 4 percent; temperature range from 5 to 50° C and from 10 to 40° C. 2 ill. 2 ref. S.D.

1/1

USSR

TSITSURIYA, I. YE. and CHUBINISHVILI, T. N.

"On a Problem of Supply Management"

Translation: This article considers a single-product, n-period model of supply
management with a determinant varying demand. The order to replenish supplies is
given at a moment in time $t = 0$ and arrives at the end of the kth period with a
probability of p and with a probability of $1-p$ at the end of the $(k+1)$th period
(k is less than n). Unsatisfied demand is delayed until supplies are replenished.

Abstract from the author's introduction.

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USSR

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CHUBINSKIY, O. V., VAGANOV, P. A., GUSTOVA, L. V., GUSHCHIN, V. N., KUZ'MITSKIY, I. V., SEREBROV, A. P., Leningrad State University

"Proton Polarization in Elastic and Inelastic Scattering by Mg-25 at E_p = 6.08 Mev"

Abstract: Continuing their study of proton polarization in elastic and in-elastic scattering by magnesium isotopes, the authors describe results of measurements of the angular dependence of the polarization of 6.08 Mev protons in elastic scattering on Mg-25 in an angle range of from 30° to 150° (labora-tory system). This is the first time that results have been obtained for the proton energy range considered. The double scattering method was used for the measurements. At certain angles (θ = 60°, 70°, 80°, 90°, 100°, and 140°) it was possible to obtain the value of the polarization of inelastically scattered protons corresponding to the states 1.614 Mev (7/2 +) and 1.960 Mev (5/2 +). Since in future the authors intend to make a combined analysis of the data obtained by them on the polarization of 6-Mev protons in elastic and inelastic scattering by the isotopes Mg-24, Mg-25, and Mg-26, including the results of 1/2

USSR

CHUBINSKIY, O. V., et al., Yadernaya Fizika, Vol 11, No 1, 1970, pp 29-32

recent measurements of variation with energy of proton polarization in scatter-
ing by Mg-24, the present article is limited to a comparison of experimental
results for Mg-25 with calculations according to the optical method.

        The authors thank the operations group of the Cyclotron Laboratory of
the Scientific Research Institute of Physics, Leningrad State University.

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1/2   014   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--PROTON POLARIZATION IN ELASTIC AND INELASTIC SCATTERING OF
  MAGNESIUM 25 AT E SUBP EQUALS 6.08 MEV -U-
AUTHOR-(05)-CHUBINSKIY, O.V., KUZMITSKIY, I.V., VAGANOV, P.A., GUSTOVA,
  L.V., GUSHCHIN, V.N.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 29-32

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ELASTIC SCATTERING, INELASTIC SCATTERING, PROTON POLARIZATION,
  MAGNESIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0174   STEP NO--UR/0367/70/011/001/0029/0032

CIRC ACCESSION NO--AP0048466
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0048466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLARIZATION ANGULAR DISTRIBUTION OF 6.08-MEV P ELASTICALLY SCATTERED ON PRIME25 MG WAS MEASURED AT 30-150DEGREES IN THE LAB. SYSTEM BY USING THE DOUBLE SCATTERING METHOD. THE 1ST TARGET WAS 2-MG-CM PRIME2 SELF SUPPORTING METALLIC MG FOIL, ENRICHED WITH PRIME25 MG UP TO 92PERCENT, THE 2ND ONE WAS 8-MG-CM PRIME2 GRAPHITE PLATE. THE SCATTERED P WERE REGISTERED WITH A TELESCOPE DETECTOR, CONSISTING OF A PROPORTIONAL COUNTER AND OF A SI-LI DETECTOR, PLACED INSIDE THE PROPORTIONAL COUNTER. THE P BEAM THROUGH MG TARGET WAS 5-6 MUA. THE INSTRUMENT ASYMMETRY WERE MEASURED WITH 11 MG-CM PRIME2 AU FOIL. THE EXPTL. RESULTS ARE COMPARED IN A GRAPH WITH THE CALCNS. BY MEANS OF THE OPTICAL MODEL. THE VALUES OF THE POLARIZATION OF INELASTICALLY SCATTERED P CORRESPONDING TO THE STATES 1.614 MEV (SEVEN HALVES PLUS) AND 1.960 MEV (THREE HALVES PLUS) WERE OBTAINED AT 60, 70, 80, 90, 100, AND 140DEGREES.   FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

USSR

CHUBISOV, D. M.

"Asymptotic Expansion for One Class of Estimates Including Estimates of Maximum Likelihood"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 303-311 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V138)

Translation: Suppose X_1, ..., X_n is a sample from a distribution with density $p(x, \theta)$, $\theta = (\theta_1, ..., \theta_s)$, and θ_n is the estimate of minimum contrast for , corresponding to contrast function $f(x, \theta)$ (generalization of the estimate of maximum likelihood produced with $f(x, \theta) = -\log p(x, \theta)$). It is assumed in particular that in the neighborhood of the true value $\theta = \theta_0$, there are certain derivatives $f^{(\alpha)}(x, \theta) = (\delta^{\alpha_1 + ... + \alpha_s}/\delta\theta_1^{\alpha_1}...\delta\theta_s^{\alpha_s})f(x, \theta)$ and $E_{\theta_0}|f^{(\alpha)}(x, \theta_0)|^r < \infty$ with a certain $r > 2$ for $\alpha = (\alpha_1, ..., \alpha_s)$ with $\alpha_1 + ... + \alpha_s \le k + 1$, $\alpha_j \ge 0$, integers. The expansion

$$\sqrt{n}\,(\hat\theta_n - \theta_s) = h_1 + n^{-1/2}h_1 + ... + n^{-(k-1)/2}h_k + \zeta_n, \qquad (1)$$

is produced, where h_j, $j = 1, ..., k$ are vectors, the components of which

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USSR

CHUBISOV, D. M., Teoriya Vcroyatnostey i yeye Primeneniya, 1973, Vol 18,
No 2, pp 303-311

are polynomials of random quantites such as $n^{-1/2} \sum_{1 \leqslant i \leqslant n} f^{(\alpha)}(X_i, \theta_0)$, while ζ_n
is a random quantity converging on zero at a certain rate which depends
on r. From this, using the result of the author of (RZHMat, 1973, 3V150)
we can produce as asymptotic expansion for distribution $\hat{\theta}_n$. Furthermore,
expansion (1) is used in the investigation of criteria of the class $C(\alpha)$,
see the work of the author: Proc. 2nd Jap.-USSR Symp. Prob. Th., Lect.
Notes Math., 1973, Vol 330, pp 16-45.
                                              Author's view

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1/2   029   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--THEORY OF THE VISCOELASTIC BEHAVIOR OF REGULAR POLYMER NETWORKS
   WITH STABLE CROSSLINKS CONNECTING FOUR CHAINS -U-
AUTHOR-(02)-POKROVSKIY, V.N., CHUBISOV, M.A.

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CIRC ACCESSION NO--AP0140237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EACH NODE OF THE REGULAR NETWORK
FORMED BY FLEXIBLE MACROMOLS., IS EXPOSED TO AN ELASTIC FORCE FROM
ADJACENT NODES, VISCOSITY FORCES (PROPORTIONAL TO THE RELATIVE VELOCITY
OF THE NODE), AND THE EFFECTIVE BROWNIAN MOTION FORCE. A KINETIC
EQUATION, DESCRIBING THE PROPERTIES OF DEFORMED NODES, WAS DERIVED. THE
RELAXATION TIME WAS DETD. AND THE BEHAVIOR OF POLYMER NETWORK DURING
SINUSOIDAL SHEAR DEFORMATION WAS DISCUSSED. THE COMPLEX MODULUS OF
ELASTICITY WAS EVALUATED AS A FUNCTION OF NETWORK PARAMETERS AND
FREQUENCY.   FACILITY: FILIAL INST. KHIM. FIZ., CHERNOGOLOVKA,
USSR.

UNCLASSIFIED

USSR

UDC 621.314.57(088.8)

SOKOLOV, G.G., CHIBUKIN, A.V.

"Single-Phase Inverter"

USSR Author's Certificate No 261545, filed 22 March 67, published 25 May 70 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B559P)

Translation: The invention pertains to a bridge single-phase thyristorized inverter, the output voltage of which is controlled with the aid of pulse-- width modulation. The reverse semiconductor diodes are connected to the anti-parallel operating thyristors. With the object of expanding the range of con-trol, the shaper of quenching pulses is supplied with two transformers, the secondary winding of each of which is connected through the reverse semicon-- ductor diodes mentioned above to the corresponding pair of thyristors of the bridge, operating in phase. 1 ill. I.R.

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621.376.54

SOKOLOV, G.G., CHUBUKIN, A.V.

"Reversing, Thyristor, Pulse-Width Converter"

Novocherkassk, Izvestiya VUZ Elektromekhanika, No 8, 1969, pp 880-883

Abstract: This article presents a description of a reversing thyristor converter, operating on the pulse-width-modulation principle. The following conditions must be met by this device in order for it to fulfill its purpose of DC motor control: the power thyristors must be controlled by continuous pulse-width modulated signals; the control system must delay the leading edges of the rectangular control pulses long enough for the damping pulses to pass; the trailing edge of the control pulse, on the other hand, must be as steep as possible. A schematic diagram of the device is presented. The parameters of the device are listed. The device was tested under laboratory conditions and passed.

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Nuclear Sciences and Technology

SAKHAROV, YE. S., CHUCHALIN. I. P., SKORIKOV, A. G., AKIMOVA,
R. I., and KARNAUKHOV, V. V.

"Radiation Loop of the IRT Reactor at Tomsk Polytechnical
Institute"

Abstract: A description is given of the characteristic features
and technical specifications of the radiation loop of the IRT
reactor at Tomsk Polytechnical Institute and the results of
efforts made to optimize its operating conditions as a function
of the position of the activity generator layers with respect
to each other and the generator as a whole with respect to the
core. The effect of the loop on the criticality of the reacotr
is also estimated.

It has been established that increasing the gamma-carrier
flow rate above 4 cm^3/sec does not increase the power of the
irradiator since the parameters γ, ν, and ϵ decrease sharply.
Graphs are presented showing the results of experiments in opti-
mizing the operating conditions of the loop. From the figure
it is obvious that there is an optimum distance between the
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SAKHAROV, YE. S., et al., Atomnaya Energiya, Vol 29, No 1,
Jul 70, pp 43-45

activity generator layers. However, the dependence of the
irradiator power on the position of the activity generator with
respect to the core has a monotonic nature. A difference between
single-layer and multiple-layer generators is noted. In the posi-
tion of the single-layer activity generator with respect to the
core there is a clear optimum coinciding with the bump zone of
the thermal neutron flux in the reflector. For the multiple
layer generator the power of the irradiator increases montoni-
cally on approaching the core. The nature of the increase in
the power curve coincides with the spatial distribution of the
total neutron flux in the reactor. This means that not only
thermal neutrons, but also more rigid neutrons which decellerate
in the interstitial layer of water between the γ-carrier layers,
participate in activation. Thus, more complete utilization of
neutrons leaking out of the core is achieved in the multiple
layer generators. In addition, more complete participation of
the γ-carrier nuclei in absorption of neutrons is also achieved
as a result of a partial decrease in self-shielding as a result
of thinning-down of the layers and decreasing the depression of
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the neutron flux in adjacent layers of moderating material.

The participation of neutrons of all energies in activation was confirmed by an experiment in which the adjacent row of fuel assemblies was replaced by graphite and the activity generator was shifted away from the core. As a result, the activity of the loop dropped by 10 percent. The graph of the experimental results also shows that the decrease in the re-activity margin of the reactor even with the generator at the closest point to the core does not exceed 0.25 percent, and in the presence of graphite fuel elements it is still less (0.17 percent). These data do not differ in practice from those obtained on other devices. Application of a movable irradiator permitted significant expansion of the experimental possibilities of the loop since it permitted entrance into the operating chamber almost immediately after shutting down the loop even if the alloy residues had not been blown out. In addition, the pre-sence of the irradiator permitted not only feeding samples to the source but also the source to the samples.
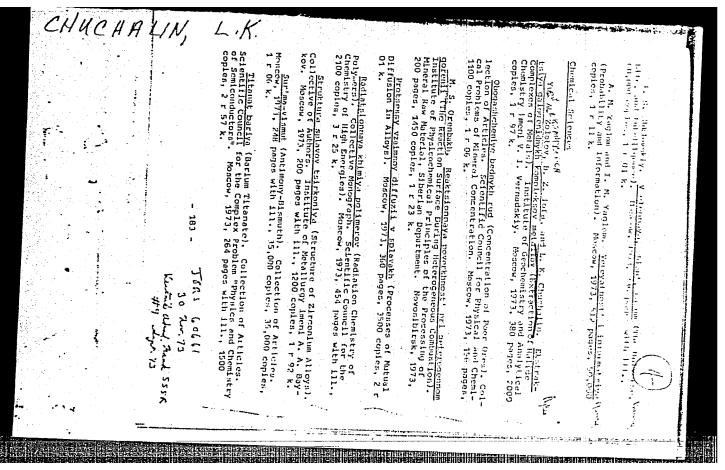
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Jul 70, pp 43-45

It is concluded that the experience in operating the
radiation loop cinfirms the reliability and simplicity of
servicing such devices. The capacity of the loop should be
increased in the future by increasing the number of layers in
the generator and also by using a more efficient γ-carrier --
pure indium.

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CHUCHALIN, L.K.

Chemical Sciences

Y. ... **Zolotov**, B. Z. Iofa, and L. K. Chuchalin. Ekstrak-
tsiya **galogenidnykh kompleksov metallov** (Extraction of Halide
Complexes of Metals). Institute of Geochemistry and Analytical
Chemistry imeni V. I. Vernadskiy. Moscow, 1973, 380 pages, 2000
copies, 1 r 97 k.

Oboqashcheniye bednykh rud (Concentration of Poor Ores). Col-
lection of Articles. Scientific Council for Physical and Chemi-
cal Problems of Mineral Concentration. Moscow, 1973, 158 pages,
1100 copies, 1 r 96 k.

M. S. Orenbakh. **Reaktsionnaya poverkhnost' pri gazifikatsii**
... (Reaction Surface During Heterogeneous Combustion).
Institute of Physicochemical Principles of the Processing of
Mineral Raw Material, Siberian Department. Novosibirsk, 1973,
200 pages, 1450 copies, 1 r 23 k.

Protsessy vzaimnoy diffuzii v splavakh (Processes of Mutual
Diffusion in Alloys). Moscow, 1973, 360 pages, 3500 copies, 2 r
01 k.

Radiatsionnaya khimiya polimerov (Radiation Chemistry of
Polymers). Collective Monograph. Scientific Council for the
Chemistry of High Energies. Moscow, 1973, 454 pages with ill.,
2100 copies, 3 r 25 k.

Struktura splavov tsirkoniya (Structure of Zirconium Alloys).
Collective of Authors. Institute of Metallurgy imeni A. A. Bay-
kov. Moscow, 1973, 200 pages with ill., 1200 copies, 1 r 92 k.

Sur'ma-vismut (Antimony-Bismuth). Collection of Articles.
Moscow, 1973, 248 pages with ill., 35,000 copies, 35,000 copies.
1 r 06 k.

Titanat bariya (Barium Titanate). Collection of Articles.
Scientific Council for the Complex Problem "Physics and Chemistry
of Semiconductors". Moscow, 1973, 264 pages with ill., 1500
copies, 2 r 57 k.

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L. K. Chuchalin, Z. A. Grankina,
S. P. Khranenko, B. I. Peshchevitskiy

INFRA-RED STUDY OF THE COMPOSITION AND STRUCTURE OF HYDROXONIUM ION COMPOUNDS FORMED BY THE EXTRACTION OF STRONG MINERAL ACIDS WITH TRI-n-BUTYL PHOSPHATE

Infra-red investigation of the solvates of hydroxonium ion formed by the extraction of $HTlCl_4$ and $HClO_4$ with tri-n-butyl phosphate (TBP) has been made. Solvates $[H_3O \cdot 3H_2O]^+_{aq.solv}$, $[H_3O \cdot 2H_2O \cdot TBP]^+_{solv}$, $[H_3O \cdot H_2O \cdot 2TBP]^+_{solv}$, $[H_3O \cdot 3TBP]^+_{aq}$, $[H_3O \cdot 2H_2O \cdot TBP]^+$ have been found in extracts of $HTlCl_4$ and solvates $[H_3O \cdot 3H_2O]^+_{aq.solv}$, $[H_3O \cdot 2H_2O \cdot TBP]^+_{solv}$, $[H_3O \cdot H_2O \cdot 2TBP]^+$, $[H_5O^+ \cdot H_2O \cdot TBP \cdot ClO_4^-]$ in extracts of perchloric acid. With increase of acid concentration in organic phase, each preceeding form turns into subsequent one.

REEL/FRAME
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CHUCHIN, A. YE.

"International Symposium on Macromolecular Chemistry in Budapest"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp 1194-1205

Abstract: A regularly scheduled International Symposium on Macromolecular Chemistry, organized by the Chemistry Department of the Academy of Sciences of Hungary under the auspices of IUPAC, was held in Budapest in August 1969. The symposium was devoted to the kinetics and mechanism of polyreactions. About 1,000 scientists and representatives of industry from more than 25 countries took part in the symposium proceedings. The Hungarian delegation included 195 persons, that of the USSR 151, West Germany 92, Czechoslovakia 87, U.S. 80, France 69, East Germany 54 and England 44. Three plenary papers, 37 main sectional papers and 400 sectional reports were presented in 11 sections.

On the opening day of the symposium M. GOODMAN (U.S.) presented on behalf of H. MARK (U.S.) the plenary paper, "New Syntheses -- New

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Polymers -- New Applications," which focused its attention on new
types of heterocyclic sulfur- and nitrogen-containing polymers and
their modification for the purpose of increasing thermostability.
The first section, "Polyaddition and Polycondensation," heard five
main papers, including papers by C. OVERBERGER (U.S.) on "The Syn-
thesis and Properties of Rigid-Chain Asymmetric Polyamide,"
Z. JEDLINSKI (Poland) on "The Synthesis of New Aromatic Polyesters,"
N. PLATZER (U.S.) on "The Formulation of Continuous and Batch Pro-
cesses for Addition Polymerization," S. G. ENTELIS (USSR) on
"Kinetics and Mechanism of Polyurethane Formation," and R. C. SCHULZ
(West Germany) on "Optically Active Polyesters and Polyamides."
Sectional papers by T. D. van der MOLEN (Netherlands) and G.
REINISCH and U. GOHLKE (East Germany) dealt with the hydrolytic and
catalytic polymerization of caprolactam. A considerable number of
papers were devoted to the synthesis of heat-resistant polyamides,
polyamidoesters, polyamides and related structures (J. HAUGER and
G. MANECKE (West Germany). Papers by B. A. ZHUBANOV, O. A.

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ALAMBEKOV and N. P. LYUBCHENKO (USSR), and V. V. KORSHAK, et al.
(USSR) dealt with peculiarities of the formation of heterocyclic
polymers. A number of papers discussed kinetic regularities of the
formation of polyesters, polycarbonates, polyphenols, polyepoxides,
polymers with a system of conjugated bonds, inorganic organoaluminum
and organosilicon polymers, phenol-formaldehyde resins, as well as
theoretical aspects of the polycondensation method of polymer syn-
thesis. D. A. KOCHKIN, I. S. NOVODEREZHKINA, P. I. ZUBOV and N. A.
VORONKOV (USSR) reported on biologically active organotin and
organolead polymers and copolymers possessing effective fungus-
resistance and bactericidal and antimicrobial properties. G. SMETS
and L. De KONINCK (Belgium) reported on "Acid-Catalyzed Polyconden-
sation of Bis-diazolalkanes."

The second section heard papers on cationic polymerization. P. G.
PLESHEM /transliterated 7 (England) gave the main sectional paper
on "Some Aspects of the Mechanism of the Polymerization of Cyclic

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Esters and Formals." Other papers were given by S. S. MEDVEDEV,
et al. (USSR) (on oxonium polymerization), Z. JEDLINSKI, et al.
(Poland), S. G. ENTELIS, et al. (USSR), D. /transliterated 7
MARTINEZ-MADRID and J. L. MATEOS (Spain), K. BOEHLKE, G. /trans-
literated 7 FRANK and V. JAACKS (West Germany), B. A. ROZENBERG,
E. A. DZHABADYAN, A. I. YEFREMOVA (USSR), A. F. BLANCHARD, S. KONDO
/transliterated 7 and D. F. /transliterated_7 PEARSON (Canada),
V. R. GUREVICH, M. A. DALIN, V. O. RAPPOPORT, et al. (USSR), S. L.
SOSIN and L. V. DZHASHI (USSR). There was a series of papers on
the cationic polymerization of dienes (R. G. FOSTER and P. KHEPVORS
/transliterated; possibly HEPWORTH 7 (England). Papers were also
given by M. A. S. MONDAL /transliterated 7 and R. N. YOUNG (Eng-
land), M. MAREK and D. PEK (Czechoslovakia), B. A. DOLGOPLOSK,
et al. (USSR), P. GISTI /transliterated_7, et al. (Italy), Z. O.
VIRPSHA (Poland), and Ye. N. ZIL'BERMAN, et al. (USSR).

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The third section was devoted to the problem of anionic polymeriza-
tion. The main sectional papers were presented by N. S. YENIKOLOP-
YAN (USSR) on "Exchange Reactions between Polymer Chains," B. L.
YERUSALIMSKIY (USSR) on "The Role of the Formation of Active Com-
plexes in Anionic Polymerization" and G. V. SCHULZ (West Germany)
on "The Position and Reactions of Carbanions in Anionic Polymeriza-
tion." Other papers were given by P. E. M. ALLEN and B. A. KASEY
/¯transliterated; possibly CASEY ̄/ (Australia), A. R. LYONS and
E. KATEROLL /¯transliterated ̄/ (England), N. A. PLATE and V. V.
MAL'TSEV (USSR), T. E. KHOGEN ESH /¯transliterated; possibly HOGEN
ASH ̄/, D. /¯transliterated ̄/ SMITH, et al. (U.S.), S. S. MEDVEDEV,
et al. (USSR), V. S. NANDA and S. K. JAIN (India), D. KRIC (Czecho-
slovakia), Ye. V. KOCHETOV, M. A. MARKEVICH, Al. Al. BERLIN, et al.
(USSR), N. S. YENIKOLOPYAN, et al. (USSR), Z. JEDLINSKI and J.
MAJNUSZ (Poland), K. S. KAZANSKIY, A. A. SOLOV'YANOV (USSR), Teiji
TSURUTA, et al. (Japan), A. Kh. BAGDASAR'YAN, et al. (USSR), Ye. N.
TINYAKOVA, N. A. SMIRNYAGINA (USSR), Z. JANOVIC, D. FLES (Yugoslavia),

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CHUCHIN, A. YE., Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp 1194-1205

T. Ye. LIPATOVA, G. S. SHAPOVAL, et al. (USSR), D. FLEŠ, W. TOMACEK, et al. (Yugoslavia).

Papers on ionic coordination polymerization were presented in the fourth section. The main sectional papers were given by B. A. DOLGOPLOSK (USSR) on "Ionic Coordination Polymerization of Dienes," N. G. GAYLORD (U.S.) on "Alternate Copolymers Based on Complex Polar Monomers," W. KERN (West Germany) on "The Position of Terminal Groups and the Number of Active Centers in Ionic and Coordination Polymerization in Heterogeneous Media," J. ULBRIGHT (East Germany) on "Polymerization and Copolymerization of Polar Vinyl Monomers in the Presence of Modified Ziegler-Natta Catalysts" and M. GOODMAN (U.S.) on "The Mechanism of Stereospecific Copolymerization." Sectional papers were given by A. SIMON and L. KOLLAR (Hungary), Yu. I. YERMAKOV, V. A. ZAKHAROV, Ye. G. KUSHNAREVA (USSR), A. GUILLOT, et al. (France), D. SVABA (Czechoslovakia), E. A. GRIGORYAN, F. S. D'YACHKOVSKIY, N. M. SEMENOVA and A. Ye. SHILOV (USSR), S. /⁻trans-

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literated 7 SUZINELLA, A. MAZZEI, V. MARCONI and S. /~transliterated_7
BUSETTO (Italy), Y. SHUTO, M. OOHIYAMA, H. SUGAHARA (Japan), B. A.
DOLGOPLOSK, Ye. I. TINYAKOVA, et al. (USSR), G. M. KHVOSTIK, I. Ya.
PODDUBNYY, et al. (USSR), K. L. MAKOVETSKIY, I. Ya. OSTROVSKAYA,
L. I. RED'KINA and I. L. KERSHENBAUM (USSR), T. DELIANU (Romania),
A. A. BUNIYAT-ZADE and M. A. DALIN (USSR), V. A. ZAKHAROV, Yu. I.
YERMAKOV (USSR), G. P. BELOV, N. M. CHIRKOV, et al. (USSR), L.
KOLLAR, G. SHNESKO /~transliterated 7, W. KERN (West Germany), V. K.
BADAYEV et al. (USSR), I. M. ABED, D. BARADI (Hungary), B. A.
DOLGOPLOSK et al. (USSR), L. S. BRESLER, I. Ya. PODDUBNYY et al.
(USSR), V. S. BYRIKHIN, S. S. MEDVEDEV (USSR), K. BIDO /~transliter-
ated; possibly C. BIDAULT or BIDEAU 7, D. IOZEFONVICH /~transliter-
ated 7, D. NEL' /~transliterated 7 (France), Y. CHAUVIN, D. CUZIN,
G. LEFEBVRE (France), N. YAMADZAKI, S. MURAI, et al. (Japan),
C. P. PINAZZI, et al. (France), B. A. KRENTSEL', et al. (USSR),
L. L. STOPKAYA, T. A. SITNIKOVA (USSR), V. A. KABANOV, et al. (USSR).

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About 70 papers were presented at the fifth section, devoted to radical polymerization. The main sectional papers were given by G. M. BARNETT (England) on "Radical Polymerization in Solution," A. D. / transliterated_7 JENKINSON (England) on "The Structure and Reactivity of Polymeric Radicals," V. A. KABANOV (USSR) on "The Influence of Complex Formation on Radical Polymerization Processes," A. V. TOBOLSKY (U.S.) on "Block Polymers Obtained by the Radical Polymerization Method," F. TUDOS (Hungary) on "Some Problems in the Kinetics of Radical Polymerization," and U. S. NANDI (India) on "Some Achievements in the Field of Radical Polymerization." Sectional papers were presented by I. GESZCI (Hungary) and G. I. NASR (United Arab Republic), S. S. IVANCHEV, A. I. PRISTYAZHNYUK and V. V. KONOVALENKO (USSR), D. BRAUN and K. H. BECKER (West Germany), J. COUPEK, S. POKORNY and D. LIM (Czechoslovakia), C. MAZZOLINI and L. PATRON (Italy), J. BARTON and V. HORANSKA (Czechoslovakia), Ye. V. MILOVSKAYA, L. V. ZAMOYSKAYA and S. I. VINOGRADOVA (USSR), I. A.

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ARBUZOVA, L. D. BUDOVSKAYA, et al. (USSR), A. YAMADA and M. YANAGITA (Japan), B. DUDEK (Poland), N. G. MATVEYEVA, A. G. KONDRAT'YEVA et al. (USSR), Ye. M. MOROZOVA, V. I. YELESEYEVA and A. S. MOROZOV (USSR), E. D. GOYEDAL'Z /ˉtransliterated_7 and E. De WITTE (Belgium), M. GUAITA, G. CAMINO and L. TROSSARELLI (Italy).

The sixth section dealt with the problem of radiation photochemical polymerization. Nine papers were presented, including those by A. A. YUL'CHIBAYEV and T. SIRLIBAYEV (USSR), Y. TABATA, K. ISHIGURE, H. HIGAKI and K. OSHIMA (Japan), R. Y. M. HUANG and G. /ˉtransliterated_7 MAYER (Canada), A. M. KAPLAN, D. P. KIRYUKHIN, I. M. BARKALOV and V. I. GOL'DANSKIY (USSR), U. N. MUSAYEV, T. M. BABAYEV and R. S. TILLAYEV (USSR), V. I. BENGOU /ˉtransliterated_7 and I. S. CARSON (England), G. POGANY and C. ZEKELY (Hungary), G. A. DEL'ZENN, U. LARIDON, and G. PETERS (Bulgaria).

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The seventh section considered polymerization in heterogeneous systems. The main sectional papers were delivered by J. W. BREITENBACH (Austria) and H. K. LIVINGSTON (U.S.). Other papers were given by V. A. MYAGCHENKOV, V. F. KURENKOV and S. Ya. FRENKEL' (USSR), L. G. MELKONYAN, E. L. SHAKARYAN, A. A. SHAGINYAN and A. M. ZAROFYAN (USSR), L. G. MELKONYAN (USSR), M. IMOTO (Japan), S. S. MEDVEDEV et al. (USSR), A. I. YURZHENKO, et al. (USSR), S. A. NIKITINA, V. A. SPIRIDONOVA and A. B. TAUBMAN (USSR), A. BLUMSTEIN, S. L. MALOTR /‾transliterated_7 and A. K. /‾transliterated_7 WATERSON (U.S.).

The eighth section on solid-phase polymerization and polycondensation heard main sectional papers by I. M. BARKALOV (USSR) on "Solid-phase Polymerization Kinetics" and D. HARDI (Hungary) on "Solid-phase Polymerization in Two-Component Systems." Other papers were given by L. KISS, S. POLGAR and P. HEDVIG (Hungary), G. L. BERESTNEVA, I. P. BRAGINA, D. R. TUR (USSR), B. WUNDERLICH (U.S.),

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Y. TABATA, Y. ITO, H. YAMASHITA and K. OSHINA (Japan), A. M. MIKHAY-
LOV, A. I. BOL'SHAKOV, et al. (USSR), A. MUNOTS-ESKALON /~trans-
literated_7, E. W. FISCHER, G. WEGNER (West Germany), I. N. SHTEN-
NIKOVA, D. HARDI, V. N. TSVETKOV, et al. (USSR), V. S. IVANOV, et
al. (USSR), J. ZURAKOWSKA-ORSZAGH (Poland), D. HARDI, et al.
(Hungary), M. AZORI and F. TUDOS (Hungary), G. WEGNER and E. W.
FISCHER (West Germany).

The grafting and cross-linking of macromolecules was the subject of
the ninth section. The main sectional papers were given by A.
SHAPIRO (France) on "Some Problems in Graft Polymerization Per-
formed by the Radiation-Chemical Method," Kh. U. USMANOV (USSR)
on "The Grafting and Cross-Linking of Macromolecules," and D. REISS
(France) on "The Contribution of Block and Graft Copolymers to the
Properties of Polymixtures." Other papers were given by Kh. U.
USMANOV, et al., U. A. AZISOV, M. M. ISHANOV, M. U. SADYKOV (USSR),
H. SIMIONESCU, S. DIMITRIU (Romania), G. A. PETROPAVLOVSKIY, G. G.
VASIL'YEVA, et al. (USSR), S. MUNARI, G. TEALDO, C. ROSSI (Italy),
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P. I. ZUBOV, et al. (USSR), J. B. DONNET, A. VIDAL, D. REISS (France), F. HIGASHIDE, Y. KANAZAWA (Japan), A. B. TAUBMAN, L. P. YANOVA, G. S. BLYSKOSH (USSR), M. Kh. KHALILOV, B. B. KULIYEV, S. U. DZHALILOV (USSR), K. A. ANDRIANOV, V. Ye. GUL' et al. (USSR), J. NAGY, A. BORBELY-KUSZMANN (Hungary), T. TSVIKOVSKIY /‾trans-literated; possibly CWIKOWSKI_7 and R. MARX (France), A. M. JENDRYCHOWSKA-BONAMOUR (France), Kh. U. USMANOV, A. A. YUL'CHIBAYEV, et al. (USSR), A. BANDERET, J. PERIARD, G. REISS (France), W. HEITZ, K. L. PLATTO / transliterated /, H. WINAU (West Germany), B. G. ZADONTSEV, M. I. CHERKASHIN and A. A. BERLIN (USSR).

The tenth section, "Polymer-analogous Transformations," heard main reports by the Soviet scientists N. A. PLATE ("A Consideration of Reagents for the Chemical Modification of Macromolecules with allow-ance for Polymeric State") and Z. A. ROGOVIN ("New Methods for the Chemical Modification of Cellulose"). Other papers were given by

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S. S. SKOROKHODOV (USSR), Ye. D. ALIYEVA, N. A. PLATE, S. L.
DAVYDOVA, V. A. KARGIN (USSR), Ya. M. PAUSHKIN, A. F. LUNIN and
S. V. MESHCHERYAKOV (USSR), N. S. MAYZEL', L. N. SEDOV, P. Z. LI,
et al. (USSR), Ya. M. PAUSHKIN, L. V. BUROVA, M. A. VORONINA,
et al. (USSR), A. Ye. CHUCHIN (USSR), Ye. Ye. YERGOZHIN, S. R.
RAFIKOV and B. A. MUKHITDINOVA (USSR), A. M. JENDRYCHOWSKA-BONAMOUR
(France), G. S. KOLESNIKOV, A. S. TEVLINA and S. N. SEVIDOVA (USSR),
N. P. KULIKOVA, L. A. VOL'F and Yu. K. KIRILENKO (USSR), L. A.
VOL'F, V. V. KOTETSKIY, et al. (USSR).

The eleventh section was concerned with the depolymerization,
degradation and stabilization of polymers. Over 70 papers were
presented. The main sectional papers were delivered by A. A.

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BERLIN (USSR) on "The Stabilization and Modification of Polymers
by Polyconjugated Systems," N. GRASSI (England) on "The Thermal
Decomposition of Polymers," H. H. G. JELLINEK (U.S.) on "Reactions
of Air Decomposition of Polymers," A. A. KUZ'MINSKIY (USSR) on
"Polymer Oxidation and Stabilization" and L. POSPISIL (Czechoslo-
vakia) on "The Structure of Phenol Antioxidants and the Effective-
ness of Their Use in Polypropylene." Sectional papers were given
by M. KISBENYI, P. HEDVIG (Hungary), A. T. KOCSKINA, M. LACKO
(Hungary), L. V. SMIRNOV, K. R. POPOV (USSR), J. R. MacCALLUM,
J. TANNER (Scotland), T. ZEKELI, F. TILL, D. BOROSZI (Hungary),
G. ALIMANOV, N. ANDONOVA (Bulgaria), V. R. ALISHOYEV, V. G.
BEREZKIN, B. M. KOVARSKAYA, I. B. NEMIROVSKAYA (USSR), T. KELEN,

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G. BALINT, F. TUDOS and G. GALAMBOS (Hungary), L. VALKO and I. TVAROCEK (Czechoslovakia), D. MILLAN /¯transliterated_7 and E. NINO (Spain), G. G. KAMORON /¯transliterated; possibly CAMORON 7 and I. T. MacWALTER (Scotland), Yu. V. BRESTKIN and S. Ya. FRENKEL' (USSR), C. DECKER and J. MARCHAL (France), J. MARCHAL, et al. (France), M. ABADI /¯transliterated_7 and J. MARCHAL (France), S. D. RAZUMOVSKIY, A. A. KEFELLI, G. Ye. ZAIKOV (USSR), S. A. ABASOV, M. A. BAGIROV, V. P. MALIN (USSR), I. A. ARKHIPOVA, S. R. RAFIKOV, N I. BUKETOVA (USSR)

The closing sessions of the symposium heard plenary lectures by S. S. MEDVEDEV on "Some Problems in Emulsion Polymerization" and G. SMETS (Belgium) on "New Polymer Syntheses."

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May 70, pp 1194-1205

The next international symposium will take place in Leiden, Holland,
at the beginning of September 1970.

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USSR   UDC: 536.532

KURKA, O. T., SITNITSKIY, Yu. I., CHUCHMAN, T. S.

"Automatic Compensation Contactless Temperature Meter for Rotating Surfaces"

Kontrol'no-Izmerit. Tekhnika. Resp. Mezhved. Nauch.-Tekhn. Sb. [Testing and
Measurement Techniques. Republic Interdepartmental Scientific and Technical
Collection], 1972, No 12, pp 89-92 (Translated from Referativnyy Zhurnal
Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.939,
by V. S. K.).

Translation: An automatic meter for measurement of the temperature of rotat-
ing surfaces is described, which operates on the principle of compensation of
energy radiated by the object of measurement by energy radiated by a nonmoving
comparison surface, the heater power of which is automatically set according
to the signal of a null indicator in a tracking system. The automatic temper-
ature meter developed includes four units (U): 1) the sensor U, including the
comparison surface and electric heater, thermal cell (null indicator) and
thermocouple measuring the comparison surface temperature; 2) the electronic
U for amplification of the signals of the thermal cell and control of the
reversing motor of the power U; 3) the power U, regulating the comparison
surface heater power; 4) the secondary device -- a series-produced automatic
potentiometer. 2 figures, 3 biblio. refs. .
1/1

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USSR

UDC: 536.46:533.6

CHUCHKALOV, I.A. and ABRUKOV, A.M.

"Phase Relationship With Vibratory Propagation of Flame"

Translation: Investigation was conducted of the dependence of phase shift between the pressure fluctuation and the cyclic variations of the flame surface area on the magnitude of the process and on the fuel mixture characteristics during the second stage of vibratory flame propagation with wave formation on its surface. High-speed movies were taken (8000 frames per sec) with visualization by Schliren and Interference Methods. The results obtained show that the phase shift decreases with the increase of magnitude of acoustic oscillations and with the decrease of normal speed of combustion.

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USSR

CHUCHKALOV, I. A. and ABRUKOV, A. M., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972

Analysis of results lead to the following conclusions: 1. acoustic instability of the flame provides the conditions necessary to excite vibrations in accordance with Raleigh criterion; 2. the principal feed-back mechanism during the second stage of vibratory flame propagation is the mechanism caused by the acoustic instability of the flame.

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USSR

CHUCHKALOV, I. A.

UDC 662.61:536.46

"Wave Formation on the Surface of a Flame"

V sb. Fiz. vibrats. goreniya i metody yeye issled. (Physics of Combustion Vibration and Methods of Studying It -- Collection of Works), No. 1, Cheboksary, 1971, pp 19-27 (from RZh-Teploenergetika, No 7, Jul 72, Abstract No 7T50)

Translation: When a flame propagates in a fixed hot mixture in a tube, the tube can be considered as a system containing a combustion zone and a system inclined to excitation. Excluding the motion of the flame with nonregular products and excluding detonation, the possible flame propagation regime can be classified thus: (a) uniform propagation of the isotopic flame (the flame and the system are stable); (b) vibration propagation of the isotropic flame (the flame is stable and the system is unstable); (c) propagation of the nonisotropic flame without oscillations in the gas column (the flame is unstable and the system is stable); (d) vibration propagation of a nonisotropic flame (the flame and the system are unstable). The fourth regime can be characterized as a case of vibration propagation of the flame with periodic

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USSR

CHUCHKALOV, I. A., <u>Fiz. vibrats. goreniya i metody yeye issled.</u>, No. 1,
Cheboksary, 1971, pp 19-27

changes of the "standing wave" type on its surface. Periodic changes in the
flame surface or a variant on the flame surface is a variety of flame instabi-
lity generated by acoustical oscillations in the tube or by vibration com-
bustion. In mixtures not inclined to spontaneous instability, vibration
propagation of the unexcited flame front precedes it. Transition from one
regime to another occurs for certain threshold values for the characteristics
of the vibrational motion. Wave formation on the surface of the flame may be
considered as the achievement of dynamic instability of the vibrating surface
of the density discontinuity. Factors bringing on combustion may have a
considerable effect on the condition for transition to wave formation. The
interaction of wave formation at the surface of the flame with acoustical
oscillations of the gas in the tube may play the important role of a mechanism
for feedback in the second stage of vibration propagation of the flame, i.e.,
substitution of the regimes of vibration combustion is accompanied by sub-
stitution of feedback mechanisms. 1 ill., 37 ref. R. M. Shchurin.

2/2

1/2   013   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--CONTRIBUTION TO THE THEORETICAL ANALYSIS OF THE VIBRATIONAL
   PROPAGATION OF FLAMES -U-
AUTHOR-(02)-CHUCHKALOV, I.A., ABRUKOV, S.A.

COUNTRY OF INFO--USSR

SOURCE--INZHENERNO-FIZICHESKII ZHURNAL, VOL. 18, MAY 1970, P. 924-926

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TUBE, CARBON MONOXIDE, FLAME PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1141   STEP NO--UR/0170/70/018/000/0924/0926

CIRC ACCESSION NO--AP0136561
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CIRC ACCESSION NO--AP0136561

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   DESCRIPTION OF A CONDITION UNDER
WHICH THE INTERACTION OF WAVE FORMING PROCESSES AT THE FLAME SURFACE
WITH PERIODIC ACCELERATIONS OF THE MEDIUM CAN PLAY THE ROLE OF THE MAIN
FEEDBACK MECHANISM DURING VIBRATIONAL FLAME PROPAGATION IN TUBES.
EXPERIMENTS PERFORMED WITH THE VIBRATIONAL PROPAGATION OF CARBON
MONOXIDE AIR FLAMES IN SEMIENCLOSED TUBES CONFIRM THE PREDICTED
MECHANISM.   FACILITY: CHUVASHSKII GOSUDARSTVENNYI UNIVERSITET,
CHEBOKSARY, USSR.

UNCLASSIFIED

TITLE--IRREVERSIBLE YIELD STRESS COMPONENT OF METALS WITH AN FCC LATTICE
-U-

AUTHOR-(02)-CHUCHMAN, T.N., LIKHACHEV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, FEB. 1970, P. 381-386

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM, TANTALUM, IRON, BIBLIOGRAPHY, STRAIN HARDENING,
YIELD STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/C896   STEP NO--UR/0126/70/029/000/0381/0386
CIRC ACCESSION NO--AP0116406
                        UNCLASSIFIED

CIRC ACCESSION NC--AP0116406

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE IRREVERSIBLE YIELD STRESS COMPONENT OF ALUMINUM, ARMCO IRON, AND TANTALUM. IT IS SHOWN THAT THIS COMPONENT IS DEPENDENT ON TEMPERATURE. AN EMPIRICAL EXPRESSION IS OBTAINED FOR THE RELATION BETWEEN THIS COMPONENT AND STRAIN HARDENING, AS WELL AS COARSE TRANSVERSE SLIP. IT IS SUGGESTED THAT THE EFFECT OF TEMPERATURE ON THE CHARACTERISTICS OF THE DEFORMATION STRUCTURE IS ESSENTIALLY DETERMINED BY THE INTENSITY OF THE COARSE TRANSVERSE SLIP. FACILITY: AKADEMIIA NAUK SSSR, FIXIKO TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

MORPHOLOGICAL CHANGES IN THE STOMACH UNDER LOCAL INTRAGASTRIC HYPOTHERMIA IN THE DOG

S. G. Chuchumashev, V. P. Zenkov

In experiments on 30 dogs morphological studies of the stomach were carried out at different periods (from 0 hours to 90 days) after local intragstric hypothermia. The temperature of the cooling fluid was —6° C and —13°. Changes in stomach structure were detected histologically and histochemically. This was manifested by acute vasomotor disorders with stases, oedena of the mucosa and of the submucosal layer, appearance of destructive changes in the covering epithelium and in the gastric glands. Changes depended on the temperature and the time. More marked morphological changes were seen during the first 24 hours after hypothermia with the cooling fluid at —13°. Histostructure returned to normal in 1—4 weeks.

REEL/FRAME
19741773

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KOLACHEV, B. A., NOSOV, V. K., LIVANOV, V. A., SHCHIPUNOV, G. I.,
CHUCHURYUKIN, A. D.

"Influence of Hydrogen on Technological Ductility of Ti Alloy with 9% Al"

Abstract: This work presents a confirmation of data on the favorable influ-
ence of hydrogen on the technological ductility of alloys with high aluminum
content at hot pressure working temperatures. The favorable influence of
hydrogen is manifested not only as a decrease in the temperature of the
anomalous increase in plasticity related to the $\alpha + \beta \rightleftarrows \beta$ conversion (about
1,100° for the alloy Ti + 9% Al), but also as an expansion in the temperature
interval of increase ductility for upsetting from 1,000° to 1,050°. The
positive influence of hydrogen is also manifested as a significant reduction
in the force of deformation throughout the entire interval of temperatures
and hydrogen concentrations studied. Hydrogen has its most favorable influ-
ence in the 0.50-0.2% (by mass) concentration interval.

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USSR   UDC 621.51:681.3

CHUDAKOV, A. D.

"Digital Fluidics Devices"

Tsifrovye Ustroystva Pnevmoniki [English Version Above], Moscow, Energiya
Press, 1971, 112 pages.

Translation of Annotation: This book studies problems of the construction
of digital devices based on fluidics elements.
    Methods are presented for logical synthesis of such devices, considering
the specific features of fluidics elements, and examples of their practical
construction based on various known types of fluidics elements are presented.
The basic types of fluidic digital devices produced to date are described,
results of their testing are presented, and examples of their possible appli-
cation are noted.
    The book is designed for engineering and technical workers specializing
in fluidics, computer engineering, and the automation of technological pro-
cesses.

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CHUDAKOV, A. D., Tsifrovye Ustroystva Pnevmoniki, Moscow, Energiya Press,
1971, 112 pages.

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